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09/924,762	08/09/2001	Yasutaka Nishida	ASAM.0017	4325

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EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 12/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/924,762

Applicant(s)

NISHIDA ET AL

Examiner

Glenda P. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 9/9/03
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3 are rejected under 35 U.S.C. 102(e) as being anticipated by Cates et al. (US Patent No. 6, 236, 525).

Regarding Claim 1, Cates et al. teach a magnetic recording system comprising:

A magnetic head for recording and reproducing information (See Abstract. Cates et al. teach a tape head that is used for servo writing and reading.);

A magnetic recording medium having a burst area with a burst signal recorded therein for positioning said magnetic head (See Fig. 2, Element 38, which is a servo burst. It is known in the art that servo bursts are used to position the head.);

And a signal processor for processing the burst signal read out by said magnetic head (Col. 3, Lines 67-44 and Lines 49-55. Cates et al. teach a servo track writer that reads timing fields from the written bursts in order to properly localize the head for further writing.);

Wherein said burst area has a first area with said burst signal recorded therein and a second area other than the first area (See Fig. 2 and Col. 4, Lines 41-60. In Fig. 2, Cates et al. teach the location of servo bursts written at a frequency  $F_e$  and the background servo area written at a frequency  $F_l$ .);

And wherein a signal having a higher frequency than the burst signal is recorded in said second area (See Fig. 2 and Col. 4, Lines 41-60. In Fig. 2, Cates et al. teach the location of servo bursts written at a frequency  $F_e$  and the background servo area written at a frequency  $F_l$ . Cates et al. further teach that the frequency  $F_e$  could be chosen to be written by a DC signal. It is inherent knowledge to an artisan in the art that a DC signal has no frequency component in a given time period, which is lower than frequency  $F_l$ ).

Regarding Claim 2, Cates et al. teach a magnetic recording system comprising:

A magnetic head for recording and reproducing information (See Abstract. Cates et al. teach a tape head that is used for servo writing and reading.);

A magnetic recording medium having a burst area with a burst signal recorded therein for positioning said magnetic head (See Fig. 2, Element 38, which is a servo burst. It is inherent

knowledge to an artisan in the art that servo bursts are used to position the head.);

And a signal processor for processing the burst signal read out by said magnetic head (Col. 3, Lines 67-44 and Lines 49-55. Cates et al. teach a servo track writer that reads timing fields from the written bursts in order to properly localize the head for further writing.);

Wherein said burst area includes a dummy area where a signal having a bit length shorter than the minimum bit length of the recorded bits constituting said burst signal is recorded (See Fig. 2 and Col. 4, Lines 41-60. In Fig. 2, Cates et al. teach the location of servo bursts written at a frequency  $F_e$  and the background servo area written at a frequency  $F_l$ . Cates et al. further teach that the frequency  $F_e$  could be chosen to be written by a DC signal. It is inherent that a DC signal has no frequency, which is lower than frequency  $F_l$ . It is inherent that the servo area has minimum bit length. The background area has a higher frequency compared to the servo area in order to determine the location (See Col. 4, Lines 60-63).).

Regarding Claim 3, Cates et al. teach a magnetic recording system comprising:

A magnetic head for recording and reproducing information (See Abstract. Cates et al. teach a tape head that is used for servo writing and reading.);

A magnetic recording medium having a burst area with a burst signal recorded therein for positioning said magnetic head (See Fig. 2, Element 38, which is a servo burst. It is known in the art that servo bursts are used to position the head.);

And a signal processor for processing the burst signal read out by said magnetic head (Col. 3, Lines 67-44 and Lines 49-55. Cates et al. teach a servo track writer that reads timing fields from the written bursts in order to properly localize the head for further writing.);

Wherein said servo area includes a first area having said servo signal recorded therein and a second area other than said first area (See Fig. 2 and Col. 4, Lines 41-60. In Fig. 2, Cates et al. teach the location of servo bursts written at a frequency  $F_e$  and the background servo area written at a frequency  $F_l$ .);

And wherein said second area has recorded therein a signal higher in frequency than the recorded signal constituting said servo signal (See Fig. 2 and Col. 4, Lines 41-60. In Fig. 2, Cates et al. teach the location of servo bursts written at a frequency  $F_e$  and the background servo area written at a frequency  $F_l$ . Cates et al.

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further teach that the frequency  $F_e$  could be chosen to be written by a DC signal. It is inherent knowledge to an artisan in the art that a DC signal has no frequency component in a given time period, which is lower than frequency  $F_1$ ).

Claim 9-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Kikuta (US Patent No. 6, 377, 416).

Regarding Claim 9, Kikuta teaches a magnetic recording system comprising:

A magnetic head for recording and reproducing information (Col. 29, Lines 34-36);

A magnetic recording medium having a servo area with a servo signal recorded therein for positioning said magnetic head and a user data area with the user data recorded therein (See Fig. 27);

And a signal processor for processing selected one of the servo signals and the user data read out by said magnetic head, said signal processor including a first low-pass filter for passing the user data and a second low-pass filter for passing the servo signal (Col. 5, Line 51 to Col. 6, Line 3. Kikuta teaches the use of filters to segregate the servo signal and the user signal separately in order to further process each signal. In order to make filters be low pass filters, it is inherent knowledge to an artisan that only the cutoff frequencies have to be adjusted to a desired frequency.).

Regarding Claim 11, Kikuta teaches a magnetic recording system comprising:

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A magnetic head for recording and reproducing information (Col. 29, Lines 34-36);

A magnetic recording medium having a servo area with a servo signal recorded therein for positioning said magnetic head and a user data area with the user data recorded therein (See Fig. 27);

A signal processor for processing selected one of the servo signal and the user data read out by said magnetic head (Col. 5, Line 51 to Col. 6, Line 3);

And a hard disk controller (See Fig. 19, Element 315);

Wherein said signal processor includes a read amplifier supplied with a reproduced signal from said magnetic head, and a low-pass filter supplied with the output of said read amplifier; wherein said hard disk controller selects the cut-off frequency of said low-pass filter in accordance with whether said low-pass filter is supplied with the servo signal or the user data (Col. 5, Line 51 to Col. 6, Line 3. Kikuta teaches the use of filters to segregate the servo signal and the user signal separately in order to further process each signal. In order to make filters be low pass filters, it is inherent knowledge to an artisan that only the cutoff frequencies have to be adjusted to a desired frequency.).

***Claim Rejections - 35 USC § 103***



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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cates et al. (US Patent No. 6, 236, 525). Cates et al. teach all the limitations of Claim 1. Cates et al. fail to teach wherein the recording frequency of the signal recorded in said second area is an integer multiple of the frequency of said burst signal. However, Cates et al. does teach that the burst signal can be overwritten with a DC signal (which has no frequency at all) and the other area is recorded with a first frequency. It is obvious to a person of ordinary skill in the art to know that there is an integer difference between the burst area and the background area because the background area is recorded with one particular frequency and the burst signal is recorded with no frequency (DC signal).

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuta et al. (US Patent No. 6, 377, 416). Kikuta teaches all the limitations of Claim 9. Kikuta et al. does not teach an input signal selector arranged in the stage before said first low-pass filter and said second low-pass filter. However, Kikuta teaches a channel that according to the signal being read, it separates the servo signal from the user data signal without the use of a selector. In order to make filters be low pass filters, it is inherent knowledge to an artisan that only the cutoff frequencies have to be adjusted to a desired frequency (Col. 29, Lines 47-67). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to

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modify Kikuta's invention in order to have a signal selector in to separate servo data and user data for further processing.

Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cloke et al. (US Patent No. 6, 411, 452) in view of Cates et al. (US Patent No. 6, 236, 525).

Regarding Claim 12, Cloke et al. teach a magnetic recording system comprising:

A magnetic head for recording and reproducing information (Pat. No. 6, 411, 452; Fig. 1D, Element 20);

A magnetic recording medium on which a servo area including a gray code area and a burst area is formed (Pat. No. 6, 411, 452; Fig. 2B. Col. 14, Lines 6-20);

And a signal processor for processing the burst signal read out by said magnetic head, wherein (Pat. No. 6, 411, 452; Fig. 4, Element 122);

Cloke et al. further teach a gray code signal is recorded and a second area other than the first area in which the second area has a higher frequency than a first area (Pat. No. 6, 411, 452; Col. 15, Lines 10-14. Cloke et al. teaches a gray code in which its frequency is increased as the graycodes reach the outer diameter of the medium.). Cloke et al. fail to teach a burst area includes a third area in which a burst signal is recorded and a fourth area other than the third area, a signal frequency recorded in the fourth area are higher than the signal recorded in the third area. However, this feature is well known in the art as disclosed by Cates et al., wherein it teaches servo bursts overwritten using a DC signal (a DC signal does not have frequency, therefore showing that is its frequency content is less than any other frequency because the

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frequency content is zero.) with a background area recorded with a frequency  $F_1$  (See Fig. 2 and Col. 4, Lines 41-60. In Fig. 2, Cates et al. teach the location of servo bursts written at a frequency  $F_e$  and the background servo area written at a frequency  $F_1$ . Cates et al. further teach that the frequency  $F_e$  could be chosen to be written by a DC signal. It is inherent that a DC signal has no frequency, which is lower than frequency  $F_1$ ). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to modify Cloke et al.'s invention in order to position the head (Col. 3, Line 63 to Col. 5, Line 1).

Claims 5, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cates et al. (US Patent No. 6, 236, 525) in view of Kikuta (US Patent No. 6, 377, 416).

Regarding Claim 5, Cates et al. teach all the limitations of Claim 2. Cates et al. fail to teach wherein said magnetic recording medium has a user data area where the user data are recorded; and wherein the minimum bit length of the recorded bits constituting said burst signal is shorter than the minimum bit length of the recorded bits constituting the signal recorded in said user data area. However, this feature is well known in the art as disclosed by Kikuta, wherein it teaches a medium wherein user data and servo data are recorded (See Fig. 27. It is known in the art that the bit length in the user data is larger than the bit length in the servo bursts in order for more information to be recorded in the medium, the servo burst area is minimized.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to modify Cates et al.'s invention in order to produce the track servo in the medium and the bit length in the user data is larger than the bit length in the servo bursts in order for more information to be recorded in the medium, the servo burst area is minimized (Pat. No. 6, 377, 416; Col. 29, Lines 54-57).

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Regarding Claim 6, Cates et al. teach all the limitations of Claim 1. Cates et al. fail to teach wherein said signal processor includes filter means for lowering the frequency of the signal recorded in said second area. However, this feature is well known in the art as disclosed by Kikuta, wherein it teaches that the frequency used in the complete servo area is low frequency to extract the servo bursts (Pat. No. 6, 377, 416; Col. 30, Lines 27-48). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to modify Cates et al.'s invention in order to produce the track servo in the medium (Pat. No. 6, 377, 416; Col. 29, Lines 54-57).

Regarding Claim 7, Cates et al. and Kikuta teach all the limitations of Claim 6. Kikuta further teach wherein said filter means is a low-pass filter having a cut-off frequency lower than the frequency of the signal recorded in said second area (Pat. No. 6, 377, 416; Col. 30, Lines 27-48). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made to modify Cates et al.'s invention in order to produce the track servo in the medium (Pat. No. 6, 377, 416; Col. 29, Lines 54-57).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cates et al. (US Patent No. 6, 236, 525) in view of Sordello et al. (US Patent No. 4, 188, 646). Cates et al. teach all the limitations of Claim 1. Cates et al. fail to teach wherein said magnetic recording medium has a user data area where user data are recorded and wherein the minimum frequency of said burst than the minimum recording frequency of the signal recorded in said user data area. However, this feature is well known in the art as disclosed by Sordello et al., wherein it teaches magnetic recording medium has a user data area where user data are recorded and wherein the minimum frequency of said burst than the minimum recording frequency of the signal recorded

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in said user data area (Pat. No. 4, 188, 646; Col. 6, Lines 8-55). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Cates et al. invention in order to keep the transducer over the center of a data path (Pat. No. 4, 188, 646; Col. 4, Lines 38-41).

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tran et al. (US Patent No. 6, 134, 070).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703)305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is (703)308-6743.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9000.



gpr

November 13, 2003.



**DAVID HUDSPETH  
SUPERVISORY PATENT EXAMINER  
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